

REMARKS

Claims 2-10 and 41 are pending in this application. Claim 41 has been amended as suggested by the Examiner.

In addition, claim 41 has been amended to include that each of the tool sections include at least one tongue feature on a first mating edge and a second section includes a groove feature for coupling to the tongue feature provided on the first section. Support for this amendment may be found, for example, at ¶¶ 0042 and 0043.

The Examiner has rejected claims 2-6, 9-10 and 41 as unpatentable over Feygin (35 U.S.C. 103 (a)). Applicant respectfully requests reconsideration of this rejection. The Examiner relies on Feygin as teaching a sintering system comprising: a tool chamber enclosing a sinter material comprising a laser-fusible sinter powder (figure 2; column 16, lines 20-30); a laser system sintering said sinter material as a function of controller signals (column 5, lines 39-50; column 16, lines 33-40); a first tool section having a first plurality of predetermined features (column 7, lines 60-67; column 13, lines 5-15); and at least one other section of said tool having a plurality of predetermined features (column 13, lines 1-25). Furthermore, the tool sections are joined or fitted together in a predetermined manner to form a larger tool (column 13, lines 25-60).

The applicant's invention is directed to a system in which divided sections prepared by laser sintering can be assembled together to form a larger tool benefiting from the use of SLS techniques. The laser sintering system grows or sinters the tool from the sinter material in response to signals from a controller, which generates the signals as a function of predetermined tool design. The predetermined tool design includes several sections that are grown separately and later coupled together.

The number of sections for the tool is predetermined as are locations of joint features on the sections. The sections are then sintered individually and connected.

The Feygin system of laminated object manufacturing (LOM) differs basically in that it requires the building of layers i.e. deposit powder based material; level layer; laser treat; repeat until all of the layers are deposited compressed and laser treated subject block of material formed to vibration so that material unaffected by laser beam falls off and the finished object obtained. This layer-by-layer i.e. LOM procedure is not required by applicant and as can be appreciated is of considerable advantage in time, labor and machinery savings realized.

The Examiner admits that Feygin does not “teach that the tool sections comprise a joint component being adapted to couple to another section of the tool” as recited in independent claim 41, but considers this to be “an obvious modification and depends on the designer’s object or tool design.” She concludes that “it would have been obvious to one of ordinary skill in the art...to configure the system of Feygin, et al. such that the tool section(s) include a joint component adapted to couple to at least one other section of said tool, wherein the joint component is a bolt, section hole or tongue depending on the object design being created by the user.” (Office Action, page 4).

This is not an obvious modification and makes possible for the first time the creation of a detail too large to be grown in a single piece because of machine limitations. The fitting together of the sections to produce large objects measuring up to 10 feet is not obvious. Independent claim 41 now recites that the sections fit together in a predetermined manner, to thereby enlarge the size of the design.

Independent claim 41 also recites the specific means for achieving the fitting together of the sections.

It is submitted if anything the Examiner is relying on hindsight, i.e., reading into the prior art, here Feygin, the teachings of the invention in issue. *Graham v. John Deere Co.* 383 U.S.1, 148 USPQ 459.

It is impermissible use of hindsight to use knowledge of the invention to conclude that the answer to the technical problem was obvious whereas to one without knowledge of the solution the answer was not obvious at all.

The rejection of claims 2-6, 9-10 and 41 in view of Feygin should be withdrawn.

The Examiner has rejected claims 7 and 8 as unpatentable over Feygin in view of Masters. Applicant respectfully requests reconsideration of this rejection. Feygin is relied on as above. Masters is relied on as teaching the presence of a heat sink or buffer feature in the form of supports which are formed within the build chamber to prevent shrinkage or warpage during curing (column 2, lines 22-27; column 6, lines 8-36). The supports are easily melted away after the object has been formed (column 6, lines 26-30).

The Examiner has concluded that it would have been obvious to one of ordinary skill in the art to configure the apparatus of Feygin further configured with the supports of Masters for the purpose of reducing shrinkage or warpage during curing of the three-dimensional object.

Claims 7-8 are dependent claims directed to the heat sink feature and the buffer feature, and have been rejected as being obvious over Feygin in view of Masters, the latter being relied on as teaching such features. The materials used by Masters are ballistic particles or continuous strands, for example, Litetak '375 is a resin used for the strands. The ballistic particles are disclosed in Pat. No. 4,665,492 or can be plaster, ceramic or metallic. Both particles and strands are involved in Masters. Laser sintering is not. The encapsulation taught at Col. 6, lines 26-30 relied on by the Examiner is taught by Masters for providing a support environment for the

object being produced, and is not applicable to Feygin as suggested by the Examiner. Feygin does not teach or suggest Applicants' system and neither does Masters. The addition of Masters with respect to preferred features adds nothing further. The references taken singly or in any combination fail to teach the applicants' invention.

The rejection of claims 7-8 should be withdrawn.

It is submitted that the claims as now presented should be found to be allowable to applicants and notification to this effect is respectfully requested. Should any issue remain to be resolved, Applicant requests that the Examiner telephone the undersigned.

Respectfully Submitted
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